CLAIMS

1. A uni-directional optical power monitor comprising:

a pig tail fiber having two optical fibers parallel to each other and at a small distance from each other,

the two optical fibers having respectively their open ends adjacent to a center of an end surface of the pig tail fiber on the end surface;

a columnar GRIN lens having two end surfaces opposing to each other, of which one faces the end surface of the pig tail fiber and the other has a tap film on it;

a sleeve provided with a first end and a second end,

the sleeve having a first circular hole being continuous from the first end approximately to an intermediate position between the first end and the second end, and a second circular hole that is continuous from the second end approximately to the intermediate position and has a center axis shifted from a center axis of the first circular hole,

the first circular hole having a through-hole communicating with the second circular hole and an intermediate wall approximately at the intermediate position; and

a photodiode positioned at the second end of the sleeve in the second circular hole and having a lens, on a front face of the photodiode, facing to the through-hole;

wherein the GRIN lens is positioned in the first circular hole such that an optical signal, which comes from one of the two optical fibers and transmits through the tap film, proceeds through the first and the second circular holes and reaches the photodiode and that an optical path of an optical signal coming from the other of the two optical fibers and transmitting through the tap film is obstructed by the intermediate wall of the sleeve.

2. A uni-directional optical power monitor as set forth in claim 1, wherein the sleeve and the intermediate wall are made of opaque ceramic, glass or plastic.

3. A uni-directional optical power monitor as set forth in claim 2, wherein the sleeve is black.

4. A uni-directional optical power monitor as set forth in claim 1, wherein the uni-directional optical power monitor satisfies the following equation:

$D \geq 2L \geq 1.517R+D/2$,

wherein L is an optical axial distance between the GRIN lens and the photodiode having the lens on the front face, R is a Gauss beam radius of a light transmitting through the tap film and D is a lens diameter of the photodiode.